

### III

## VULVO-VAGINITIS IN CHILDREN\*

By DR. D. KATHLEEN BROWN

It was with very mixed feelings that I received an invitation from the honorary secretary of this society to read a paper here to-night. I was fully conscious of the honour done to me in being asked to address a gathering of experts, but at the same time doubtful of making good use of that privilege. However, the subject is of such importance that I hope from the papers to-night there may arise a fruitful discussion which will help considerably in the future treatment of vulvo-vaginitis in children.

I propose to limit myself to vulvo-vaginitis of gonococcal origin, and, with the kind permission of the directors, Mr. V. E. Lloyd and Miss Rawlins, to base my remarks on the study of cases attending the female V.D. Clinic of Guy's Hospital during the five-year period 1925-1929.

#### GUY'S HOSPITAL V.D. CLINIC, 1925-1929

Number of new cases of gonococcal vulvo-vaginitis . . . . .	118
Discharged cured . . . . .	46
Transferred to other hospitals—	
After first attendance . . . . .	5
During treatment . . . . .	8
During final period of observation for further tests . . . . .	3
Ceased to attend during treatment . . . . .	4
Ceased to attend during final period of observation . . . . .	4
Still attending . . . . .	48

#### DURATION OF ATTENDANCE

For the 46 cases who were treated to completion, including final tests for cure, the minimum period of attendance was 17 weeks and the maximum 204 weeks. The average period was 67 weeks. This includes 18 cases

\* Based on an address delivered before the Medical Society for the Study of Venereal Diseases, March 28th, 1930.

## BRITISH JOURNAL OF VENEREAL DISEASES

who were either sent to the Children's Medical Home for many months' treatment or who were very irregular in attendance.

For 28 cases who attended the clinic regularly the minimum period of attendance was 17 weeks and the maximum 90 weeks, with an average of 44 weeks.

I have also gone through the cases of children who were admitted to the Children's Medical Home, Coldharbour House, Waddon, during the period of 1 year and 9 months from March, 1928, to December, 1929. In case information is lacking, this is a home for the treatment of girls between the ages of three and fourteen years who are suffering from gonorrhœa or syphilis. The majority of cases are sent from London hospitals, but a few come from the provinces. The reasons for sending them are usually the inability to attend hospital sufficiently frequently or bad home conditions. The duration of the disease varies from a few weeks up to 2 years. One case was even of 7 years' duration.

### CHILDREN'S MEDICAL HOME, MARCH 25TH, 1928, TO DECEMBER 24TH, 1929

The figures for this period of 21 months were :—

Number of admissions of gonorrhœa	.	84
Number of admissions of gonorrhœa and syphilis	.	1
Number discharged after treatment	.	55
Number treated to completion with at least 8 weeks' observation	.	35
Number discharged with less than 8 weeks' observation	.	16
Number discharged during treatment at request of parents	.	4
Number discharged as unsuitable	.	6
Number still resident in Home (on December 24th, 1929)	.	24

### DURATION OF RESIDENCE

For the 35 cases who were kept under observation for at least 8 weeks after suspension of treatment the minimum period of residence in the Home was 15 weeks, and the maximum 55 weeks (this case was under observation for 22 weeks). The average period was 31 weeks.

# VULVO-VAGINITIS IN CHILDREN

## INCIDENCE OF GONORRHOEA

The incidence of gonorrhœa in children for the five years at Guy's V.D. Clinic was 118 children out of a total of 931 cases of female gonorrhœa, or 12·5 per cent. This percentage of children was fairly constant each year, the highest being 15 per cent. in 1927 and the lowest 10 per cent. in 1929. It is satisfactory to note the decreased percentage last year.

Kidd and Simpson in 1924 stated that no less than 50 infected children were met with in 650 cases—that is to say, at their clinic 1 case in 13 was a child, or roughly 8 per cent.

## NON-GONOCOCCAL VULVO-VAGINITIS

During this period 174 children attended for examination on account of discharge or soreness of the vulva, or because they were contact cases with infected parents or sisters. I have not analysed these cases in detail, but infection was due in the majority of cases to the streptococcus, staphylococcus, *B. coli* or Klebs Loeffler bacillus. Dirt and threadworms were also a cause of vulvitis, and, as a result of scratching, excoriations and a streptococcal impetigo were found in some cases.

The ratio of gonococcal cases to N.V.D. cases was thus 118 : 174, or 1 : 1·5. Of the total 118 cases, 70 were discharged during the five years, and my remaining figures will be based on this group.

## AGE INCIDENCE (70 cases)

The ages varied from ten months up to twelve years. The average age works out at 4·6 years. Reith Fraser in a series of 63 cases showed an average age of 4·7 years.

The age groups are as follows :—

	Per cent.
Under 1 year . . . . .	3 cases = 4·3
1-5 years . . . . .	38 „ = 54·3
5-10 „ . . . . .	22 „ = 31·4
10-12 „ . . . . .	7 „ = 10

Lees gave the following analysis of age groups in a series of 146 cases during a period of 5 years, 1922-1927 :—

	Per cent.
0-1 year . . . . .	7·4
1-5 years . . . . .	39·2
3-10 „ . . . . .	44·9
10-15 „ . . . . .	8·4

## BRITISH JOURNAL OF VENEREAL DISEASES

In the series at Guy's Hospital there were no cases between the ages of twelve and fifteen years.

### SEASONAL INCIDENCE

Some observers have reported an increased incidence of gonorrhœa during the hot months of the year. In this series of 70 cases there were only two more in the July quarters than in the January quarters, while the numbers for the April and October quarters were identical.

My impression is that relapses are more apt to occur during hot weather, but I have not collected figures to bear that out.

### MODES OF INFECTION

In a large proportion of cases the source of infection cannot be traced, but accidental transmission by the use of infected towels, sponges, sheets, lavatory seats, and so on, would appear to be the most common. The evidence in favour of this indirect mode of infection is shown by the large numbers of infected children whose parents on examination are found to have gonorrhœa. Rawlins found that among 47 consecutive cases of gonococcal vulvo-vaginitis in children treated at the V.D. Clinic of Guy's Hospital in 1929 the infection in 20 cases, *i.e.*, 42·5 per cent., was found to be present in one or other parent. Lees found that in 32 per cent. infection was traced to others in the family.

Kidd and Simpson believe that the majority of these infections arise as a result of the promiscuous life of the poor, the children sleeping in bed with the parents and the use in common of towel, sponge, etc.

In epidemics in institutions the disease spreads rapidly, probably by the use of infected bedpans or lavatories, towels and sponges, or even, as some observers suggest, by the clinical thermometer or syringes.

The vulval mucous membrane, which is columnar in type and not covered by stratified epithelium, as in the adult, is more exposed to these indirect modes of infection in a child, as the labia majora are everted and not fully developed. The absence of Döderlein's bacillus and the acid vaginal secretion may also make the mucous membrane less resistant to infection. With the approach of puberty the vulva is protected by the labia majora and

## VULVO-VAGINITIS IN CHILDREN

by the acid bactericidal secretion. This probably explains the lower incidence of infection in girls over ten years of age.

Assault is not a common cause of infection in this country. Does the superstition that contact with a virgin will cure gonorrhœa in the male still survive? In the few cases of assault which I was able to investigate this explanation did not hold good. Reith Fraser states that in South Africa two methods of transmission appear responsible for 99 per cent. of all cases. The one is the hand of the infected, coloured nurse girl, and the other is the lavatory seat.

The causes of infection for the five-year period at Guy's Hospital were as follows :—

		Per cent.
Unknown or doubtful origin	. 47 cases	= 67
Ward infection	. 11 „	= 15·7
Parents G.C. positive	. 9 „	= 13
Assault	. 3 „	= 4·3

The percentage of positive parents is unduly low in this series, as 81 per cent. were either insufficiently tested or not examined. Of those examined, 24 per cent. were positive, although more were suspicious clinically. I should like to emphasise how large a number of mothers of these children deny, apparently in all good faith, having had any discharge, but sometimes an admission of “whites for years” is obtained. In cases of recent infection, however, a definite history is usually given. As far as possible the parents and sisters of the child should be examined in every case of gonorrhœa.

In the case of one child of two and a half years the mother said that there had been a discharge since birth, but worse for 2 weeks, with screaming on micturition. This was an interesting history, as the child was born as a breech presentation. Was it a case of vulvo-vaginitis neonatorum? The mother was not examined.

At the Children's Medical Home, out of 84 admissions the causes of infection were as follows :—

		Per cent.
Accidental, unknown or doubtful origin	. 49 cases	= 58
Parents G.C. positive	. 26 „	= 31
Assault	. 7 }	= 11
Probably assault	. 2 }	

## BRITISH JOURNAL OF VENEREAL DISEASES

The percentage of positive parents is again probably underestimated, as a number of admission forms have notes to the effect that parents have not been examined.

The percentage of assault cases, on the other hand, is higher, because I think the more usual hospital practice is to send as many of these cases as possible away from their own home and surroundings.

### PATHOLOGY

Dr. Buckley Sharp is dealing with the pathology of vulvo-vaginitis in detail. I will merely give the figures for these cases.

Out of the 70 cases at Guy's Clinic, 43 (61 per cent.) were found to have gonococci in the vaginal smear at the first attendance. Of the 27 (39 per cent.) with negative reports, 24 became positive later, the majority within the first few days, but 1 case was positive after 9 months with 6 negative tests in the interval. In some cases tests were repeated before starting treatment, and in others treatment was instituted immediately. This high percentage—39 per cent.—of negative tests on the first examination emphasises the necessity of repeated tests in all cases of vaginal discharge in children before finally excluding gonorrhœa. The vaginal cultures gave a considerably lower percentage of positive results than the smears in this series. Of the 3 negative cases 2 had given positive reports elsewhere previously. The third case with a negative vaginal smear was interesting. She was a child of three and a half years, who had clinically a urethritis, with a positive urethral smear 12 days after the first attendance. Vaginal smears were negative on 17 occasions. It is most unusual, I think, for a gonococcal urethritis to be found apart from an associated vaginitis.

All the pathological work for the Children's Medical Home is done at St. Thomas's Hospital, and I have to thank the pathologist for all the reports on these cases.

In acute cases the gonococcus is invariably demonstrated in both vagina and urethra. In fact, I do not regard urethritis as a complication of vulvo-vaginitis, but as part of the clinical picture. Lees gives 99 per cent. as the frequency with which the urethral canal is involved in acute cases.

Out of the 84 cases in the Children's Medical Home

## VULVO-VAGINITIS IN CHILDREN

50 were positive on admission, 33 were negative, but had previously been positive, the remaining 1 was negative and had been sent after an inconclusive test. Over a long series of examinations the film and culture reports agree, but the necessity of taking cultures in addition to films was shown in some chronic cases who gave positive cultures when the films were negative. Harrison recommended that culture tubes should be taken out of a warm incubator, and after inoculation immediately replaced. The higher proportion of positive cultures at the Children's Medical Home is possibly due to this, as the incubator is in use as at St. Thomas's V.D. Clinic.

### CLINICAL SYMPTOMS AND SIGNS

There is no need to dwell on the clinical picture of an acute gonorrhœa in a child. The excoriation of the groins and labia majora with adherent crusts of dried pus, the acutely inflamed vulva bathed with pus, the inflammation and œdema of urethral orifice and hymen, with thick creamy pus oozing from the vagina with any expulsive effort on the part of the child, is diagnostic.

With all this inflammation it is sometimes the absence of symptoms which is surprising in some cases. It may explain the delay in bringing some children for treatment if an unobservant mother does not see any discharge. On the other hand, the child who has frequency, or who screams on micturition, or who complains of pain on walking, or of irritation, is more likely to be seen early.

May I say at this point how unfortunate it is that some medical practitioners still do not appreciate the danger or do not fully investigate cases of discharge in children. Two cases recently have come to my notice in which the mother was told that the discharge was due to a cold or weakness. She was told to keep the child clean and well bathed, and a tonic was given. In both cases the result was most unfortunate, as apart from delay in adequate treatment other sisters were infected from sleeping in the same bed. In each case, too, the mother had recently been infected by her husband, but did not think it necessary to come up for advice about her own discharge until she attended with the child.

The acute symptoms clear up with treatment, but the length of time before negative reports are obtained varies

## BRITISH JOURNAL OF VENEREAL DISEASES

considerably in different cases. In both series under review the minimum period was 2 weeks and the maximum 15 weeks, while the average worked out at 6 weeks for Guy's Clinic cases, and 7 weeks for the Children's Medical Home cases.

At a later stage of the disease gonococci are frequently found in apparently clear mucus when there is no associated local inflammation. It is these children who sometimes develop into the true carriers.

### RELAPSES

The tendency to relapse is unfortunately one of the features of this disease. In Guy's V.D. Clinic (46 cases) the percentage of children who relapsed—the relapses varying from 1 up to 5 in number—was 54·3 per cent., while in the Children's Medical Home (35 cases)—the relapses varying from 1 up to 3—it was 49 per cent.

A relapse may be due to infection from an insufficiently treated urethra, or to an unrecognised infection of the cervix or the rectum. I believe that masturbation is a potent factor in the causation of a relapse. The parts are kept in a state of chronic congestion with an increased secretion of mucus due to the local stimulation. In bad cases there are even local abrasions and bruising. The lurking gonococci become active and a purulent discharge follows. Unfortunately the habit of masturbation is very easily acquired in these children, and a vicious circle is set up with local treatment. It is most difficult to break the habit if attention is drawn daily to the genitalia. Naturally gonorrhœa occurs in children who are already masturbators, as shown by the hypertrophy of the labia minora and clitoris and stretching of the hymen. I find that these cases remain positive longer and are most resistant to the usual methods of treatment.

### COMPLICATIONS

Complications occur less frequently in gonorrhœa in children than in the adult.

In the 65 cases at Guy's V.D. Clinic they were as follows :—

					Per cent.
Urethritis	.	.	.	.	8 cases = 12·2
Proctitis	.	.	.	.	3 „ = 4·6



## VULVO-VAGINITIS IN CHILDREN

	Per cent.
Gonococcal infection of the eye . . . . .	2 cases = 3
Pelvic peritonitis . . . . .	1 case = 1·5
Arthritis . . . . .	1 „ = 1·5

The percentage of cases of urethritis is low, as the urethra was not examined as a routine in every case.

The case of pelvic peritonitis occurred in a girl of 10 years. It was interesting, as it developed into a left pelvic abscess which discharged through the vagina.

In the 78 cases at the Children's Medical Home the complications were as follows :—

	Per cent.
Urethritis . . . . .	53 cases = 67
Warts . . . . .	4 „ = 5
Cervicitis . . . . .	3 „ = 4
Proctitis . . . . .	3 „ = 4
Purulent conjunctivitis . . . . .	2 „ = 2·5
Endometritis and salpingitis . . . . .	1 case = 1·3
Arthritis . . . . .	1 „ = 1·3

In this series the percentage of cases of cervicitis and proctitis may be unduly low. The cervix was only examined in cases which failed to respond to the usual methods of treatment. The rectum was examined in over 40 cases.

Both cases of conjunctivitis had profuse purulent discharge from the eye with œdema of the eyelids, but the gonococcus was not demonstrated. In 1 case both eyes were affected.

In 3 of the cases of warts there were only one or two small ones present, but in the fourth case they increased so rapidly during treatment that removal was necessary under an anæsthetic. Masturbation was definitely the cause of the rapid spread.

Reith Fraser, in his series of 63 cases occurring in South Africa, found the gonococcus in the rectum in 59 cases in spite of the fact that symptoms were entirely vulvo-vaginal. Lees found infection of the rectum in 2·7 per cent. of his cases.

## PROPHYLAXIS

Dr. Sharp is dealing with prophylaxis, but I should like to emphasise the importance of giving instructions in most minute detail to every adult case of gonorrhœa

## BRITISH JOURNAL OF VENEREAL DISEASES

where there are female children in the house. If the advice given were carefully followed the number of so-called "accidental" infections would diminish considerably.

The practice of taking films from all female children who show signs of a vaginal discharge on admission to a hospital ward or an institution, and most careful nursing, are essential in the prevention of epidemic infections.

### TREATMENT

From the numerous methods of treatment advocated by different authorities it is evident that there is no single infallible "cure" for gonorrhoea in children. Some children will clear up rapidly with whatever method is employed, while others prove so resistant that one almost has to wait in despair for the child to "grow out of it."

The treatment employed at Guy's Clinic varied.

- (1) Spuman was used either alone or with propargol 10 per cent. in glycerine in a large proportion of cases.
- (2) Mercurochrome 10 per cent., emulsion of sulphur, or acriflavine 2 per cent. were also used as local applications.
- (3) Irrigations with potassium permanganate 1 in 10,000. Glauramine, dibromine or gollucide 3 per cent. were used in some of the earlier cases with bougies of collosol argentum, protargol or glauramine.

The general health was maintained by means of tonics or cod-liver oil whenever indicated. Home treatment was carried out by Sitz baths. Vaccines, either detoxicated or stock, were given in 11 cases. Is it of any significance that in the 3 cases who relapsed 5 times, each received a course of detoxicated vaccine at the commencement of the disease? Each case was admitted to the ward, so that conditions were most favourable to treatment. The average duration of treatment for 28 cases who attended regularly was 15 weeks. The minimum period was 1 week, and the maximum 45 weeks. Daily attendance was the general rule for the first few weeks, and later alternate days or twice weekly.

The method of treatment adopted at the Children's

## VULVO-VAGINITIS IN CHILDREN

Medical Home is that of painting the vulva, vagina and urethra daily. A dressed Playfair's probe is used for the vagina and a finely-dressed orange stick for the urethra.

Sitz baths, 1 to 4 daily, are given as required, and afterwards the parts are dried carefully and kept as dry as possible with a compound dermatol dusting powder. Frequent Sitz baths in small children sometimes cause incontinence of urine, and in these cases the vulva is only swabbed with lotion, dried and powdered.

If the discharge is very profuse a vaginal irrigation of saline or potassium permanganate 1 in 10,000 is given before the painting. In practice these irrigations have sometimes to be suspended, as it is found that such local stimulation produces marked excitement and dilatation of the vagina. This is undesirable, as it increases masturbation.

The applications I have used are :—

Mercurochrome 10 per cent. or 5 per cent. in watery solution.

Protargol 10 per cent. in glycerine.

Milton 50 per cent. in glycerine.

Neorcargon in dry powder form.

Potassium permanganate 2 per cent.

Silver nitrate 1 per cent.

Acridlavine 1 in 500 or 1 in 1,000 with pencils in addition.

Monsol 10 per cent. (formerly known as Anosol).

I have also used collosol mercury for resistant cases of urethritis.

Needless to say, no one lotion has proved specific. One child clears up well, while another remains positive for weeks on the same preparation.

The general treatment is most important, and includes rest in the early stages, if possible out of doors. Cod-liver oil and malt or Radiostoleum is given to increase the general resistance of the body to infection. An alkaline mixture is given in all the acute cases owing to the associated urethritis.

Complications are treated as they arise. A course of detoxicated vaccine (Genatosan) was given in 14 out of the 51 cases.

In this short series the average period of treatment was

## BRITISH JOURNAL OF VENEREAL DISEASES

increased for the vaccine cases from 18 up to 22 weeks. Relapses occurred in only 36 per cent., however, as against 57 per cent. in cases who received no vaccine.

Hamilton in 1910 reported two parallel series of cases, one series treated with irrigations alone and the other with vaccines alone. The average length of time under active treatment by the irrigation method—260 cases—was 10.1 months. The average length of time under active treatment by vaccine—84 cases—was 1.7 months. This would appear to be an ideal method of treatment for children and would have the great advantage of not focussing the child's attention on the genital organs.

Treatment is continued for 4 to 6 weeks after bacteriological and clinical cure. Tests are taken at fortnightly or weekly intervals throughout treatment.

The average duration of treatment for 51 cases in the Home was 18 weeks, the minimum period being 4 weeks and the maximum 39 weeks. The average duration of treatment was made higher by 3 cases of assault and 2 very bad masturbators. I think the associated trauma in assault cases, with consequent lowering of local resistance of the tissues to infection, enables the gonococcus to embed itself deeply, and I find that these cases are invariably resistant to treatment.

### PERIOD OF OBSERVATION AND STANDARD OF CURE

All authorities agree on the necessity of prolonged observation and repeated tests before finally discharging the child as cured.

At Guy's Clinic the average period of observation after suspension of local treatment for the 46 cases was 24 weeks. During this time the average number of tests taken was 6. A provocative injection of vaccine was given 24 hours before the final test in some cases.

At the Children's Home my aim is to keep each child under daily observation for at least 2 months, and preferably 3 months, after suspension of treatment. During this time at least 6 tests are taken at intervals of 7, 10 or 14 days. In some cases the last set of films and cultures are taken after a provocative vaccine. The child is then discharged as "probably cured," and is sent back to her own hospital for further observation and tests.

## VULVO-VAGINITIS IN CHILDREN

### THE VALUE OF THE COMPLEMENT-FIXATION TEST IN VULVO-VAGINITIS

A paper by Osmond and Oliver was published in 1929 on the "Value of the Complement-Fixation Test in Gonorrhœa," in which the results of 5,000 tests were analysed. They pointed out:—

- (1) The very low percentage (0.6 per cent.) of false positive results.
- (2) The high percentage of positive results, reaching almost 100 per cent., in cases of gonorrhœa with complications.
- (3) That following clinical cure the change from positive to negative occupies a relatively long period.

Since reading their paper I have employed the test in cases of vulvo-vaginitis. The sera have been sent to the Pathological Department of St. Thomas's Hospital, and for the following reports and notes I am indebted to Dr. Price, who has performed the tests. Thirty-eight sera from different patients have been tested; with the exception of 7, all were taken during treatment.

- (a) 19 sera were strongly positive ( $++$  or  $+\pm$ ).
- (b) 5 „ „ positive ( $+$ ).
- (c) 6 „ „ weakly positive ( $\pm$ ).
- (d) 8 „ „ negative ( $-$ ).

(a) and (b). Of the 24 positive results G.C. had been found in all cases, the longest time being 19 weeks and the shortest time 4 days prior to the serum being tested. In 1 case the G.C. had not been found for 11 months. Eighteen of these cases were clinically active.

(c) Of the 6 weakly positive reactions ( $\pm$ ) G.C. had been found in all cases, the longest time being 7 months and the shortest time 4 weeks prior to the serum being tested. Five of these cases were clinically inactive.

(d) Of the 8 negative reactions G.C. had been found in 4 cases which clinically were inactive, "suspicious pairs" in 3 cases, while in the last case no suggestion of G.C. had ever been found.

Thus the test appears to be remarkably specific, there being no "false positives." The antibody production curve of the blood appears to be as follows:—

A strongly positive reaction ( $++$ ) is not given until about 4 weeks after infection. This does not, of course, invalidate the test, since during this "latent period" of

## BRITISH JOURNAL OF VENEREAL DISEASES

antibody production G.C. are usually very easily demonstrated in the discharges. It is from this point onwards that the test is of definite value, especially in the detection of hidden foci of infection after apparent cure.

In these cases, if G.C. are deeply embedded, or in cases with complications, *e.g.*, arthritis, a positive reaction is the rule. Therefore, in the tests for cure the complement-fixation test should not be omitted. If a positive result is obtained the test should be repeated on the serum to eliminate experimental error, and if a similar result is obtained then the patient should be examined again for infected follicles, etc., and either treated or kept under observation according to the results. After 2 months the C.F.T. should be repeated, and a note made if there is any drop in the strength of the reaction (*i.e.*, a ++ to +). If the reaction drops to a weak positive ( $\pm$ ) or negative and there is still no clinical or bacteriological evidence the case may be regarded as cured. One child I had in the Home—not included in this series of tests—gave a negative C.F.T. when she was clinically and bacteriologically positive during a relapse. This was a case which apparently did not form antibodies. It is the only case I have met with in a short series; but is there any information on the subject of defective antibody formation in cases of gonorrhoea in children? It would be most interesting to collect results of the C.F.T. in gonococcal carriers. One of the children in this series had an infection of 7 years' duration. Her C.F.T. was weakly positive ( $\pm$ ) 7 months after the last positive film and 4 months after suspension of treatment. She was discharged from the Home and returned to Guy's V.D. Clinic for further observation. Tests were taken at fortnightly intervals, and on the third occasion G.C. were found. It is the question of treatment which is the difficult problem in these cases. Would protein shock or diathermy be of help in these persistently positive children?

### AFTER-HISTORIES

Fifteen children who had first attended Guy's Hospital V.D. Clinic between the years of 1921 and 1924 were written for in order to ascertain the permanence of their cure. Five only attended for re-examination. Their ages ranged from thirteen up to sixteen and a half years, and

## VULVO-VAGINITIS IN CHILDREN

they had been discharged from 1 year and 8 months up to 4½ years previously.

Three were well-developed girls in whom menstruation had started at the ages of thirteen, fourteen and fifteen years, and was quite normal. One only complained of slight pain across the lower abdomen and a little discharge before the periods. The remaining 4 cases had not had any discharge.

On examination, apart from a stretched hymen and lax vagina, the condition appeared normal in 3 cases. Slight mucoid discharge was seen in the girl who had complained of a discharge before the periods. There was redness of the Bartholin orifices in the fifth case. This girl had previously had cervicitis, but not Bartholinitis clinically. The films and cultures were negative in every case. *B. Döderlein* were present in 4 cases. The C.F.T. was negative in 3 cases. It was positive in 1 case. This girl was thirteen years of age and had attended the Clinic for 4 years until July, 1928. She was a masturbator, and had relapsed seven times during that period. She was finally examined under an anæsthetic. There was definite cervicitis which was treated with iodised phenol. There was no further relapse, and after 4 months' observation with 11 negative tests the child was discharged. This is a case in point of a complication giving rise to a positive C.F.T., which in this case has remained positive for 1 year and 8 months.

Of the 55 children discharged from the Children's Medical Home reports have been received from the medical officers of the various clinics regarding 50 :—

30 had remained well and had been discharged from hospital after 2 weeks' up to 1 year's observation with negative tests.

11 had remained well with satisfactory tests for 1 to 9 months, and were still attending for further observation.

7 had relapsed in from 2 weeks up to 1 year after their discharge from the Home.

2 had not attended hospital.

Three of the children who relapsed were removed by their parents as soon as treatment was suspended.

One thinks of the possibility of re-infection after returning home, but it is very difficult to prove except in cases where it is known that the parents were infected

and were insufficiently treated. I, therefore, prefer to call all these cases relapses.

#### TERMINATION

It is frequently stated that even in untreated cases cure will occur before adult life is reached, but what is the ultimate fate of these children ?

In taking histories from adult women it is not uncommon for them to state that there has been a discharge since childhood. Are some of these discharges the result of an unrecognised gonorrhœa in early life ? Can an undeveloped uterus causing dysmenorrhœa and sterility, or even an ectopic gestation, be traced back to pelvic inflammation during childhood ? The gynæcologist should be able to provide us with information as to the history in adult life of these cases. But if these sequelæ do occur, then herein lies a still more serious aspect, apart from its infectivity, of gonorrhœa in children.